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DEPARTMENT OF THE TREASURY WASHINGTON, D.C. 20220

March 4, 2003

MEMORANDUM FOR DEPUTY COMMISSIONER FOR MODERNIZATION & CHIEF

INFORMATION OFFICER

Gordon C. Willown =

FROM: Gordon C. Milbourn III

Acting Deputy Inspector General for Audit

SUBJECT: Final Audit Report – Improvements in the Measures Program for

Information Technology Services Would Further Increase Its

Value to Stakeholders (Audit # 200220035)

This report presents the results of our review of the business results measures used by the Modernization, Information Technology and Security (MITS) Services organization. The overall objective of this review was to determine whether the business results measures were adequately defined, met legal standards, and supported the Internal Revenue Service's (IRS) balanced measurement system. The Government Performance and Results Act of 1993 (GPRA)¹ was enacted by the Congress to hold Federal agencies accountable for achieving business results. The GPRA requires agencies to identify their high-risk management challenges, set performance goals, and adopt measures to assess their performance. To comply with this law, the MITS Services organization established a system of balanced measures that included a set of business results measures.

We also followed up to determine whether the MITS Services Performance Assessment Office (PAO) addressed the issues reported in a previous Treasury Inspector General for Tax Administration review of MITS Services business results measures.² In our previous review, we reported that some measures did not have data sources and diagnostic indicators,³ the Business Performance Review (BPR) presented some

¹ Government Performance and Results Act of 1993, Pub. L. No. 103-62, 107 Stat. 285 (codified as amended in scattered sections of 5 U.S.C., 31 U.S.C., and 39 U.S.C.).

² Further Business Results Measure Development Can Improve Management of the Information Systems Organization (Reference Number 2001-20-083, dated May 2001).

³ Diagnostic indicators are numbers or statistics that support or help explain the business results measures and allow management to better understand the numbers.

measures that were inaccurate or misleading, and the measures did not address the management challenges that the IRS reported to the Congress.

In summary, we determined the PAO has made progress in developing and using MITS Services business results measures. Most of the measures are reported in the MITS Services quarterly BPRs in colorful graphs in which performance goals can easily be compared to actual performance. A Service Level Agreement was completed with all of the IRS business organizations to which MITS Services provides computer services. The data sources needed to calculate the measures were identified and described in a data dictionary.⁴ Actions were initiated to develop measures to address the critical management challenges of computer security and business systems modernization. We also determined that MITS Services management is using the measures to improve their operations.

While the PAO has made improvements to the system of business results measures, several issues we reported in our previous review have not been fully addressed. For example, the helpdesk tickets, which are used to calculate five of the measures, are unreliable. A significant percentage of these tickets, recorded in the Information Technology Asset Management System to track computer problems, are misclassified or inaccurately recorded. Also, a valid sampling plan was not used to calculate another measure.

Additionally, MITS Services did not accurately or clearly report two measures in its third quarter Fiscal Year 2002 BPR presentation. Without an accurate calculation and clear reporting of the business results measures, IRS management and oversight bodies do not have reliable performance data to make decisions.

Although good procedures for verifying and validating the measures have been developed, these procedures are not being followed. Not verifying and validating the measures increases the likelihood that errors might not be detected, and management may take actions based on inaccurate information.

Further, one of the nine measures is not an appropriate business results measure because the information it tracks is outside of the control of the MITS Services organization. Therefore, MITS Services is being measured on something that is not a factor of its performance.

Lastly, measures have not been developed to report on the accuracy of the IRS' inventory system for automated data processing equipment. This issue is consistently of interest to oversight bodies, including the Congress, and a key goal for which measures should be developed.

To improve the accuracy and reliability of the measures, we recommended live monitoring of the personnel responsible for recording the helpdesk tickets and monthly reviews of the tickets until the inaccuracies are resolved. In addition, a formal sampling

⁴ A data dictionary provides definitions for the measures and explains where the data used to calculate the measures is obtained.

3

plan should be prepared and followed for the calculation of one measure, and the PAO should disclose all limitations and potential inaccuracies in the measures that are reported in the BPR and budget submissions.

The measures that are calculated based on helpdesk tickets should be calculated using all of the relevant helpdesk tickets, and be based on the core or specific hours requested by the users of the computer systems. To comply with the GPRA and ensure the measures report accurate results, ongoing verification and validation activities should be conducted for all business results measures.

Finally, one of the measures should be used as a diagnostic indicator rather than a business results measure, and MITS Services should develop a measure to address the challenge of creating and maintaining an accurate automated data processing inventory system.

Management's Response: The IRS' Director of Resources Allocation and Measurement agreed with our recommendations and indicated that verification and validation procedures would be implemented to ensure that the calculated data being reported in the BPRs is accurate and complete. A formal documented sampling plan will be implemented for the "Percent Subsecond System Response Time" measure. In addition, the PAO will also disclose the data limitations and potential inaccuracies reported in the measures.

To ensure the "Number of Hours of Availability" and "Percent Systems Availability" measures are properly calculated and reported, the PAO will begin counting the unscheduled system downtime recorded on all of the helpdesk tickets. Furthermore, the PAO will calculate these measures based on the specific hours requested by the users. The PAO will also begin reporting the "Number of RISs⁵ Received for Filing Season⁶" solely as a diagnostic indicator. Lastly, to address the management challenge of creating and maintaining an accurate automated data processing inventory system, the PAO will develop a business results inventory measure. Management's complete response to our report is included as Appendix V.

Copies of this report are also being sent to the IRS managers who are affected by the report recommendations. Please contact me at (202) 622-6510 if you have questions or Gary V. Hinkle, Acting Assistant Inspector General for Audit (Information Systems Programs), at (202) 927-7291.

⁶ The filing season is the period from January through mid-April when most individual income tax returns are filed.

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⁵ Requests for Information Services (RISs) are computer system change requests submitted by IRS business units.

Table of Contents

Background	Page	1
Progress Has Been Made in Developing and Reporting Business Results Measures	Page	3
The Accuracy and Reliability of Five Measures Is Compromised Due to Inaccuracies in the Supporting Data	Page	5
Recommendations 1 and 2:		
Recommendation 3: Page 10		
Two of the Nine Measures Did Not Accurately or Clearly Represent the Performance of Operations	Page	10
Recommendations 4 and 5:		
Verification and Validation Activities Were Not Adequate for Seven of the Nine Business Results Measures	Page	14
Recommendation 6: Page 16		
One of the Business Results Measures Is Not Appropriate	Page	17
Recommendation 7: Page 18		
Measures Have Not Been Developed to Report on the Accuracy of the Inventory System	Page	18
Recommendation 8: Page 19		
Appendix I – Detailed Objective, Scope, and Methodology	Page	20
Appendix II – Major Contributors to This Report	Page	22
Appendix III – Report Distribution List	Page	23
Appendix IV – Summary of Issues Identified With the Nine Business Results Measures	Page	24
Appendix V – Management's Response to the Draft Report	Page	25

Background

The Modernization, Information Technology and Security (MITS) Services organization has adopted a system of balanced measures to assess the performance of its major programs and progress in achieving goals. The system is composed of three types of measures: employee satisfaction, customer satisfaction, and business results. We focused our review on the business results measures because this type of measure is designed to specifically assess the key services and programs of the MITS Services organization.

MITS Services established its system of measures to comply with the Government Performance and Results Act of 1993 (GPRA)¹ and other guidance issued by the Office of Management and Budget (OMB). The GPRA was enacted by the Congress to hold Federal agencies accountable for achieving results. The GPRA requires agencies to identify their high-risk management challenges, set performance goals, and adopt measures to assess their performance. The goals and measures must be objective, quantifiable and measurable, and provide sufficient detail to allow comparison of the goals to the actual performance so that Internal Revenue Service (IRS) management and the Congress can determine the results of IRS programs.

The OMB issued guidance to Federal agencies through its Circular A-11 on how to comply with the GPRA. The OMB instructed agencies to strike a balance between too few and too many measures. Agencies should include enough measures to show, in a substantive way, how well the agency is doing in carrying out its programs. Furthermore, measures usually have a numerical target level or goal that facilitates an assessment of whether the goals were actually achieved.

The MITS Services Performance Assessment Office (PAO) works with other segments of the MITS Services organization to identify business results measures and diagnostic indicators. Diagnostic indicators support or help

Page 1

¹ Government Performance and Results Act of 1993, Pub. L. No. 103-62, 107 Stat. 285 (codified as amended in scattered sections of 5 U.S.C., 31 U.S.C., and 39 U.S.C.).

explain the business results measures and allow management to better understand the numbers. For example, the "Ticket Activity" measure is the total number of helpdesk tickets opened and closed during a given period of time. The "Number of Computer Users" and "Number of Computer Network Devices" are two diagnostic indicators that support or help explain the results of the "Ticket Activity" measure.

In our previous review of MITS Services business results measures, ² we reported the PAO achieved significant accomplishments in the development of business results measures, diagnostic indicators, ³ a data dictionary, ⁴ and a Business Performance Review (BPR) process. We also reported that some measures did not have data sources and diagnostic indicators, the BPR presented some measures that were inaccurate or misleading, and the measures did not address the management challenges that were reported to the Congress.

Subsequent to the issuance of our previous report, the MITS Services revised, eliminated, and added to its set of 16 business results measures. The new set of business results measures consists of nine measures grouped into three categories:

- User Support Four measures report on the timeliness of the resolution of computer problems reported to the helpdesk by IRS employees.
- Data Access and Communication Three measures report on the functioning and responsiveness of the IRS' major computer systems.

² Further Business Results Measure Development Can Improve Management of the Information Systems Organization (Reference Number 2001-20-083, dated May 2001).

³ Diagnostic indicators are numbers or statistics that support or help explain the business results measures and allow management to better understand the numbers.

⁴A data dictionary provides definitions for the measures and explains where the data used to calculate the measures is obtained.

 Applications Support – Two measures report on the timeliness of completion of programming changes that impact the IRS' filing season.⁵

In this review, we followed up on the issues reported in our previous audit and conducted tests to determine whether the new set of business results measures were adequately defined, met legal standards, and supported the IRS' balanced measurement system.

We conducted this review from July to October 2002 at the MITS Services offices in New Carrollton, Maryland. Our review was conducted in accordance with *Government Auditing Standards*. Details on our audit objective, scope, and methodology are presented in Appendix I. Major contributors to the report are listed in Appendix II.

Progress Has Been Made in Developing and Reporting Business Results Measures Several important actions have been taken since our last review of the MITS Services balanced measures. The IRS Commissioner holds quarterly BPR meetings, and those reviews involve preparation and presentation of the business results measures along with other key data for management decision-making. In the BPR presentations, most of the MITS Services measures are presented in colorful graphs and charts in which goals can easily be compared to actual performance. Trends are clearly identified and discussed at the bottom of each graph. This method of reporting the measures complies with the requirements of the GPRA, the OMB, and the Department of the Treasury.

The MITS Services organization also recently completed a Service Level Agreement with the IRS business organizations to which MITS Services provides computer services. The Agreement is effective for Fiscal Year (FY) 2003 and represents a groundbreaking achievement for MITS Services. The Agreement contains the services and service levels that MITS Services agreed to provide to the IRS business units. The business results measures will be used to measure the achievement of the targeted service levels.

Page 3

⁵ The filing season is the period from January through mid-April when most individual income tax returns are filed.

Data sources needed to calculate the measures have been identified for all nine business results measures, and these sources are clearly described in the data dictionary. The data dictionary also provides the methods used to calculate each measure.

The PAO is taking actions to define and baseline⁶ all of the diagnostic indicators needed to support the business results measures. It plans to begin reporting this information beginning in early 2003.

Other actions have been taken to measure the effectiveness of MITS Services actions to address the critical management challenges reported to the Congress. Measures to address the challenges of computer security and business systems modernization are now being reported in the BPRs and in Strategy and Program Plans.

In addition to making progress in developing business results measures, management is taking actions based on the results reported in the measures. For example, the "Tickets Resolved on Time" measure reports the percentage of computer helpdesk tickets that are resolved in a timely manner. The performance goal for this measure is 80 percent. The second and third quarter FY 2002 BPRs reported that this performance goal was not being met. Therefore, the Director of the MITS Services End User Equipment and Services organization has identified and is implementing steps to improve the abilities of its helpdesk technicians to address these tickets in a timely manner. One of these steps involves consolidating helpdesks to achieve a more consistent service level.

The MITS Services organization has made significant progress in improving its business results measures. However, we identified several issues, some of which were discussed in our previous report, that need to be addressed to ensure the nine business results measures are accurately and clearly presented, and to address other key concerns. The issues identified with the nine business results measures

⁶The term "baseline" is used to express the normal, average, or expected number or statistic based on historical data.

The Accuracy and Reliability of Five Measures Is Compromised Due to Inaccuracies in the Supporting Data are discussed below and a summary of the issues is presented in Appendix IV.

In our previous review, we reported that seven business results measures reported in the BPR were not accurate or complete and could be misleading. We recommended the PAO disclose the data sources and limitations for all of the business results measures. In this review, we found similar issues with five of the nine new measures.

The underlying data is unreliable

We found that inaccuracies in the underlying data compromise the reliability of five measures. Helpdesk tickets, recorded in the Information Technology Asset Management System (ITAMS) to document and track computer problems, are used to calculate the following five business results measures:

- "Percent Tickets Resolved on Time" percentage of helpdesk tickets closed within established time standards.
- "Ticket Activity" total number of tickets opened and closed during a given time period.
- "Percent Resolution at First Contact" percentage of tickets that can be resolved by helpdesk technicians at first contact that are, in fact, resolved by the technicians.
- "Percent Systems Availability" percentage of the total scheduled hours in a day that a system is available for use.
- "Number of Hours of Availability" average number of actual hours per day that a system is available for use.

In our review, we found that the helpdesk tickets used in the calculation of the above five measures were often misclassified, and many tickets remained open after the computer problems were resolved. In addition, many tickets were closed with the ITAMS system default date rather than with the actual ticket closure date. As a result, the calculations of the above five business results measures are incorrect.

For example, the End User Equipment and Services organization selected and analyzed a statistical sample of 718 Priority 3 helpdesk tickets. The analysis determined 47 percent of the tickets recorded in the ITAMS between May and June 2002 were inaccurately classified. Approximately 10 percent of the tickets should have been classified as higher Priority 1 or 2 tickets.

Two additional studies also determined that the helpdesk tickets were being inaccurately classified. One study was conducted on the Priority 2 tickets that were recorded in the IRS Martinsburg Computing Center in January 2002 after the PAO Manager questioned the high number of Priority 2 tickets. The study determined that 7 (37 percent) of 19 tickets recorded as Priority 2 were inaccurate. These seven tickets should have been classified as another priority.

Another study was conducted on Priority 1 and 2 tickets recorded in the ITAMS during the months of January through September 2002. A formal report of the results of this study was not prepared. However, the End User Equipment and Services office informed us that they found a significant number of the Priority 1 and 2 helpdesk tickets were inaccurately classified.

The correct recording and classification of helpdesk tickets is critical to the accurate calculation and reliability of the business results measures. For example, unscheduled downtime of a major IRS computer system should be recorded on a Priority 1 helpdesk ticket. To calculate the "Number of Hours of Availability" measure, the PAO counted all of the unscheduled downtime recorded on Priority 1 tickets. This total was then subtracted from the total hours the system was scheduled to be up and running. If the unscheduled downtime of the computer system was misclassified and recorded on a Priority 2 or Priority 3

⁷ Helpdesk tickets are rated based on the severity of the reported problem. Priority 1 and 2 problems have mission critical work stoppage implications, and usually require input from resources outside the helpdesk function. Priority 3 tickets are less critical and more easily resolved because they usually can be resolved by the helpdesk technician. MITS Services receives approximately 10,000 to 15,000 Priority 3 tickets per month.

ticket, this data would not be used in the calculation of the measure. Consequently, the "Number of Hours of Availability" measure would report better results than were actually achieved.

The ITAMS was deployed in October 2001, and there was a transition period between the old system and the new system. This transition resulted in some issues with the helpdesk ticket data and in a learning curve for assistors.

Additionally, the inaccurate classification and recording of helpdesk tickets was due to inadequate discipline and accounting skills among the employees responsible for recording the tickets. On-line monitoring of the assistors as they recorded the tickets would help ensure their accuracy and improve this inadequate discipline.

Lastly, prior to selecting the measures, a thorough feasibility analysis to determine the accuracy and reliability of the underlying data was not conducted. This analysis would have detected the significant number of inaccuracies and unreliability of the helpdesk ticket data.

A valid sampling methodology was not used

The reliability of the "Percent Subsecond System Response Time" measure was also questionable. This measure reported the percentage of time that three major IRS computer systems respond to a user in 1 second or less. The systems measured were the Automated Collection System (ACS), Corporate Files On Line (CFOL), and the Integrated Data Retrieval System (IDRS). MITS Services set a performance goal for each of these computer systems. For example, when an IRS employee submits a request or types a command into the IDRS, the goal for this system is to respond in 1 second or less 98 percent of the time.

⁸ MITS Services selected 1 second or less as its standard for this measure because industry studies have shown that 1 second or less is considered the standard limit for most computer users' flow of thought to remain uninterrupted.

⁹ The IRS uses these three computer systems, among others, to process and collect taxes.

MITS Services calculates the "Percent Subsecond System Response Time" measure using the Attachmate software tool, which is an automated response time measurement tool. Since it would be costly and impractical to install Attachmate on all of the IRS workstations that use the three systems, the Attachmate tool is installed on a sample of computer workstations. To properly calculate this measure and project the results of the sample over the population of workstations that access the systems, Attachmate must be installed on a statistically valid sample of workstations.

However, a statistically valid sample of workstations was not used to calculate the "Percent Subsecond System Response Time" measure. The computer workstations monitored by Attachmate were selected in part based on specific requests by the IRS Commissioner who wanted Attachmate installed at small and large sites located at various distances from the IRS' Computing Centers. The managers at each site judgmentally selected the workstations on which Attachmate would be installed. The selection was further complicated by the fact that Attachmate could not be installed on all types of computer terminals. Therefore, the results reported by this measure are unreliable because they cannot be statistically projected.

The PAO does not believe a statistically valid random sample is needed. It stated the initial selection of computer terminals was random, and there is a point of diminishing returns where using a statistically valid sample to calculate the measure would not significantly improve its accuracy. It also stated that given its physical, logistical, and budgetary constraints, a pure random sample is not possible.

However, when we discussed the business results measures with management from the Enterprise Operations organization within MITS Services, they expressed concerns about relying on the accuracy of this measure to make business decisions because of the clustered locations of the terminals selected. It is critical to ensure that measures are accurate so that executive management in the business area and other oversight organizations can have sufficient confidence in them to make appropriate business decisions.

Management Actions: MITS Services management is taking actions to address the inaccurate helpdesk tickets. The End User Equipment and Services organization updated a key document titled the *Probe and Response Guide* with helpful scenarios and guidance that can assist IRS employees and contactors to accurately record helpdesk tickets. This guide will be stressed during bi-weekly conference calls between managers and employees responsible for recording helpdesk tickets.

Training was also provided to new employees and contractors assigned to the Enterprise Service Desk. Lastly, a workshop was held for key officials to identify and address inaccuracies in the helpdesk tickets and the measures based on these tickets.

Recommendations

To improve the accuracy and reliability of the data used for the MITS Services business results measures, the Deputy Commissioner for Modernization & Chief Information Officer should direct:

1. The End User Equipment and Services organization to conduct live monitoring of the helpdesk assistors and perform monthly reviews of helpdesk tickets until the inaccuracies related to the recording of service tickets are resolved. These reviews should be conducted on a sample of tickets recorded by each helpdesk. Formal written reports should be prepared to document the results of the reviews. Additional formal training should be conducted in those locations where problems persist.

<u>Management's Response</u>: The End User Equipment and Services organization, with support from the PAO, will implement verification and validation processes.

2. The PAO to prepare a formal sampling plan for the "Percent Subsecond System Response Time" measure that focuses on the computer terminals used to calculate the measure. The sampling plan should identify the population size, confidence level, precision, sample size, and other sampling criteria. The computer terminals on which Attachmate is installed should be randomly

selected. In addition, the population of terminals, on which Attachmate cannot be installed, should be identified and, if significant, disclosed when this measure is reported in the BPR and in the IRS' GPRA submissions.

Management's Response: The PAO, working with the End User Equipment and Services and Enterprise Operations organizations, will implement a formal documented sampling plan for the "Percent Subsecond System Response Time" measure.

3. The PAO to disclose all limitations of and potential inaccuracies in measures that are included in reports, such as the BPR and budget submissions, until those limitations and inaccuracies are addressed.

<u>Management's Response</u>: The PAO will disclose the data limitations and potential inaccuracies in its reports, such as the BPR and budget submissions, until the limitations are resolved.

Two of the Nine Measures Did Not Accurately or Clearly Represent the Performance of Operations In our previous review of MITS Services business results measures, we recommended the PAO complete its efforts to clearly and fully define the business results measures, and identify and include all relevant data for measure calculation. This action was necessary to ensure the BPR provides relevant information for management decision-making. In response to our report, MITS Services stated it would ensure data in the BPR were accurate and relevant for management decisions.

However, in our current review, we identified issues with the accuracy and clarity of the reporting of two of the measures - "Number of Hours of Availability" and "Percent Systems Availability." Improvements in the accuracy and clarity of these two measures is critical to ensure IRS management and oversight bodies have accurate performance data upon which to make decisions.

Measures were improperly calculated

The "Number of Hours of Availability" and "Percent Systems Availability" measures were improperly calculated due to a decision by the PAO to not count the unscheduled

system downtime recorded on Priority 2 and 3 helpdesk tickets.

As previously discussed, a significant number of helpdesk tickets recorded in the ITAMS were miscategorized or inaccurate. Some helpdesk tickets coded as Priority 3 tickets should have been coded as a higher priority, such as a Priority 1 or 2. For example, if a computer system unexpectedly shut down during the middle of the day and users were unable to access the system to do their jobs, this problem should have been recorded on a Priority 1 ticket, but may have been recorded as a Priority 2 or 3 ticket. Unscheduled system downtime should be counted and factored into the calculation of the measures regardless of whether it was accurately classified on a helpdesk ticket.

For the third quarter FY 2002 BPR, the PAO calculated the performance by first counting the downtime recorded on Priority 1, 2, and 3 helpdesk tickets, and then by counting only the downtime recorded on Priority 1 tickets. Although the inaccuracies in the helpdesk tickets were widely known, the results of the second count, using only Priority 1 tickets, showed better results and were the only numbers reported for this measure in the BPR presentation.

The following table shows a comparison of the differences in the calculation of the performance measure results using all the helpdesk tickets and only the Priority 1 tickets. If all helpdesk tickets showing system downtime had been used in the calculations, the BPR would have shown that targets were missed for four of the five systems measured.

Table 1: Average Hours Per Day for Systems Availability

Computer System	All Helpdesk Tickets Counted	Only Priority 1 Tickets Counted	Performance Targets (customer expectations)
ACS	19.5	24.0	18.5
CFOL	23.7	24.0	24.0
IDRS	16.8	20.4	17.1
ISRP ¹⁰	12.8	18.8	12.9
SCRIPS ¹¹	13.9	18.0	14.1

Sources: MITS Services Cumulative Year-to-Date by Month Report, 3rd Quarter Fiscal Year 2002 BPR, the Service Level Agreement, and the Strategy and Program Plan.

Systems performance was measured after the hours requested by users

The "Number of Hours Availability" and "Percent Systems Availability" measures were also inaccurate because the PAO measured the performance of the above computer systems outside or after the core hours requested by the users. Late in FY 2002, MITS Services signed a Service Level Agreement that provided for certain levels of service for the ACS, CFOL, and IDRS users during specific periods of the day. The following table presents the specific hours requested by the users.

Table 2: Specific Hours Requested by the Users

Computer System	Sunday	Monday – Friday	Saturday
ACS	0 Hours	19 Hours	16 Hours
CFOL	24 Hours	24 Hours	24 Hours
IDRS	8 Hours	19 Hours	17 Hours

Source: The MITS Service Level Agreement, Attachment 1.

¹⁰ ISRP – Integrated Submission and Remittance Processing. ISRP performs submission processing of taxpayer forms and remittance processing of their payments.

¹¹SCRIPS – Service Center Recognition Image Processing System. SCRIPS provides imaging and processing of some taxpayer forms.

In its calculation of the "Number of Hours of Availability" and the "Percent Systems Availability" measures, the PAO did not count only the specific hours requested by the users. The PAO counted all 24 hours in the day (see Table 1, third Column). This practice distorted the intent of the measure, which was to report whether MITS Services provided the level of service it agreed to with its customers. If MITS Services did not keep a key tax processing system running during the core work hours requested by the users, this poor performance might not be reflected in the measure because MITS Services measured the performance of the system after regular work hours when the users are off-duty and did not have a need for the system.

To be meaningful, these two measures should be calculated using the computer system's performance during the core hours specifically requested by the users. Goals should be established and measurements against those goals should be based on these core hours.

Management indicated that because the hours of availability needed by the users vary depending on the season, the calculations to determine these measures become complex. As a result, in the past, they have chosen to simplify the calculations and use a 24-hour schedule.

The presentation of measures in the Business Performance Review was not clear

The "Number of Hours of Availability" and the "Percent Systems Availability" measures were also reported differently in the BPR from the other business results measures. They were presented in a statistical table on the last page of the measures section in the BPR. Unlike the other measures, which were presented in graphs and actual performance could be easily compared to performance goals, the presentation of these two measures was unclear. Trends could not be identified, and there was no explanation or discussion of the results.

Management indicated they made a conscious decision not to present these measures graphically. They stated that it was their option how to present the various measures in the

BPR, and they determined to report these measures in the tabular format.

Recommendations

To ensure that all measures accurately and clearly represent the performance of MITS Services operations, the Deputy Commissioner Modernization and Chief Information Officer should direct the PAO to:

4. Count the unscheduled downtime recorded on all helpdesk tickets and factor this total into the calculations of the "Number of Hours of Availability" and "Percent Systems Availability" measures. The PAO should continue this practice until the misclassification and inaccurate recording of the helpdesk tickets is resolved.

Management's Response: The PAO will work with the End User Equipment and Services and Enterprise Operations organizations to count the unscheduled downtime until the misclassification and inaccurate recording of the helpdesk tickets is resolved.

5. Calculate the "Number of Hours of Availability" and "Percent Systems Availability" measures based on the performance of the computer systems during the core or specific hours requested by the users.

Management's Response: The PAO will work with the End User Equipment and Services and Enterprise Operations organizations to calculate the scheduled hours of availability measures based on the Master Service Level Agreement.

In our previous review, we reported the PAO had difficulty verifying and validating data used for the business results measures. The GPRA requires agencies to describe the means to be used to verify and validate their measures. In response to our report, MITS Services indicated it would employ an enhanced validation and verification process using generally accepted accounting principles as a basis.

The PAO developed good verification and validation procedures and documented them in its policies and procedures guide. The procedures require independent verification and validation work to be conducted on the

Verification and Validation Activities Were Not Adequate for Seven of the Nine Business Results Measures

calculation of the measures. Analysts who perform the verification and validation are required to keep records of the work and maintain these records in the form of working papers. These working papers are required to contain sufficient detail to enable an experienced analyst with no previous connection with the verification and validation activity to follow the working papers and arrive at the same conclusions and judgments. Analysts performing the verification and validation work should prepare written reports detailing the results of the work and submit the reports to the PAO manager. If followed, these procedures would help ensure the accuracy of the measures.

However, we found that there is no substantial ongoing verification and validation for seven of the nine business results measures. Management indicated that this validation did not occur because they were still in the process of correcting errors in the underlying data due to the transition period between the old helpdesk system and the new system. This transition resulted in issues with the accuracy of the helpdesk ticket data. As a result, time constraints did not permit them to follow the procedures as documented.

The following measures were not validated as the procedures describe:

- Ticket Activity.
- Mean Queue Time.
- Percent Resolution at First Contact.
- Percent Tickets Resolved on Time.
- Percent Subsecond System Response Time.
- Percent Systems Availability.
- Number of Hours of Availability.

The only verification and validation activity that is conducted on an ongoing basis for these measures is a

customer survey. 12 Although a survey does provide some indication of the accuracy of the business results, it is not adequate in itself to provide assurance that supporting data is accurate and that results are accurately calculated and presented.

Without verification and validation, there is an increased likelihood that errors might not be detected, measures may be improperly calculated, or errors in the underlying sources could go undetected. As a result, management or oversight bodies could take inappropriate actions based on the inaccurate results reported in the measures.

Management Actions: The End User Equipment and Services organization and PAO management recently conducted a helpdesk ticket workshop to identify some of the issues with inaccuracies with the helpdesk tickets. This workshop also discussed the need to establish a cyclical ticket review process. These activities should be a good start towards developing an ongoing verification and validation activity for those measures based on helpdesk ticket accuracy.

Recommendation

To further ensure the accuracy of the MITS Services business results measures, the Deputy Commissioner Modernization and Chief Information Officer should direct the PAO to:

6. Perform ongoing verification and validation activities for all of the business results measures and supporting data reported in the MITS Services BPRs.

<u>Management's Response</u>: The PAO, in cooperation with MITS Services providers, will implement verification and validation processes.

¹² A customer survey is a list of specific questions that MITS Services sends to a group of IRS employees to solicit feedback and gauge the employees' level of satisfaction with the services provided by MITS.

One of the Business Results Measures Is Not Appropriate

The "Number of RISs¹³ Received for Filing Season" measure is not an appropriate measure because it does not describe performance by the MITS Services organization. This measure reports the number of RISs the MITS Services Business Systems Development organization receives each month with requested operational dates within the IRS' annual filing season.

The GPRA indicates that measures should assess results in achieving performance goals, and OMB Circular A-11 indicates that measures should show how the agency is doing in achieving its programs. Because many factors outside the control of the MITS Services organization directly influence the number of RISs received during the IRS' annual filing season, it is inappropriate for MITS Services to set a performance goal for this measure.

However, this measure provides valuable insight into why fluctuations occur in another measure, the "Systems Delivery Commitments Met" measure, which reports the number of RISs completed on time compared with those completed late. Therefore, we believe the "Number of RISs Received for Filing Season" measure should be changed from a business results measure to a diagnostic indicator.

When we discussed this measure with the PAO, the director indicated that it was selected because the business area was firm in its stance that the number of RISs received was an important indicator of its ability to perform.

If the "Number of RISs Received for Filing Season" continues to be reported as a business results measure, it could cause the Business Systems Development Office to be evaluated on things beyond its control. For example, if this measure shows an increase or decrease, IRS management, the IRS Oversight Board, or the Congress could misinterpret this measure and assume MITS Services is responsible for correcting these aberrations.

¹³ Requests for Information Services (RIS) are computer system change requests submitted by IRS business units.

Recommendation

To ensure that the MITS Services' performance is accurately measured, the Deputy Commissioner Modernization and Chief Information Officer should direct the PAO to:

7. Move the "Number of RISs Received for Filing Season" from the nine business results measures and report it solely as a diagnostic indicator. This diagnostic indicator should be used to help management better understand the other business results measures.

Management's Response: The PAO, with concurrence from the Director, Business Systems Development, will report the "Number of RISs Received for Filing Season" solely as a diagnostic indicator.

Measures Have Not Been Developed to Report on the Accuracy of the Inventory System The challenge of maintaining an accurate inventory of automated data processing equipment has impacted MITS Services for many years. The problem results in inadequate financial accountability and the inability to identify, safeguard, and manage IRS assets. Although this is not one of the current management challenges as reported to the Congress, this issue is a consistent area of interest of oversight bodies, including the Congress, and a key goal for which measures should be developed. In our previous review, we recommended the PAO coordinate the efforts and work with the appropriate MITS Services organizations to develop business results measures to measure the progress in achieving this goal.

In this follow-up review, we did not identify any measures under development or in testing that would address this issue. Management indicated that their attempts to develop an inventory measure have been unsuccessful because the underlying data was unreliable and error-prone. In addition, the ITAMS, from which these measures would be calculated, is not completely automated in the inventory area.

Without a specific measure, MITS Services cannot report its progress in creating and maintaining an accurate inventory of automated data processing equipment. Therefore, it is

difficult for IRS management or the Congress to assess the progress in addressing this challenge, and management does not have a reference to determine whether the IRS is improving in this area.

Recommendation

To measure the MITS Services' progress in developing an accurate inventory system, the Deputy Commissioner Modernization and Chief Information Officer should direct the PAO to:

8. Develop a business results measure and identify data sources to address the management challenge of creating and maintaining an accurate automated data processing inventory system.

<u>Management's Response</u>: The PAO, working with the End User Equipment and Services organization, will develop a business results inventory measure and identify data sources.

Appendix I

Detailed Objective, Scope, and Methodology

The overall objective of this review was to determine if the business results measures established for the Modernization, Information Technology and Security (MITS) Services organization were adequately defined, met legal standards, and supported the Internal Revenue Service's (IRS) balanced measurement system. We also evaluated the effectiveness of the actions taken to correct the issues identified in our previous report. To accomplish these objectives we performed the following tests:

- I. Determined the relevance, usefulness, and legal compliance of MITS Services business results measures.
 - A. Evaluated the Business Performance Review process to determine whether it provides useful information for management decision-making.
 - B. Secured and reviewed the IRS' Fiscal Year (FY) 2003 Annual Performance Plan and the FY 2003 Congressional Justification to verify whether any MITS Services business results measures were included and reported.
 - C. Reviewed the revised set of nine MITS Services business results measures to determine if they met legal standards.
- II. Determined whether the MITS Services has adequately addressed the findings reported in our previous audit report on MITS Services business results measures.
 - A. Determined whether data sources were identified for the nine business results measures.
 - B. Evaluated whether the Performance Assessment Office (PAO) actively conducts an ongoing verification and validation of the business results measures data to provide assurance of its accuracy and completeness.
 - C. Determined whether the PAO ensured that the appropriate diagnostic indicators were matched to the nine new MITS Services business results measures.
 - D. Evaluated whether the PAO clearly and fully defined the MITS Services business results measures and included them in Business Performance Reviews.

¹ Further Business Results Measure Development Can Improve Management of the Information Systems Organization (Reference Number 2001-20-083, dated May 2001).

E. Determined the status of actions taken by the PAO to coordinate its efforts with the MITS Services line organizations to use a repeatable process to develop business results measures for high-risk challenges reported to the Congress, including the security of the IRS' information systems, systems modernization, and accuracy of the automated data processing inventory system.

Appendix II

Major Contributors to This Report

Gary V. Hinkle, Acting Assistant Inspector General for Audit (Information Systems Programs)

Scott A. Macfarlane, Director

Tammy L. Whitcomb, Audit Manager

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Michelle Griffin, Senior Auditor

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Appendix III

Report Distribution List

Acting Commissioner N:C

Chief Financial Officer N:CFO

Chief, Information Technology Services M:I

Director, End User Equipment and Services M:I:EU

Director, Enterprise Operations M:I:EO

Director, Financial Management Services M:FM

Director, Portfolio Management M:R:PM

Director, Resources Allocation and Measurement M:R

Chief Counsel CC

National Taxpayer Advocate TA

Director, Legislative Affairs CL:LA

Director, Office of Program Evaluation and Risk Analysis N:ADC:R:O

Office of Management Controls N:CFO:F:M

Audit Liaisons:

Chief, Information Technology Services M:I

Program Manager, Program Oversight & Coordination M:R:PM:PO

Appendix IV

Summary of Issues Identified With the Nine Business Results Measures

Business Results Measures	Underlying Data Unreliable	Invalid Sampling Methodology Used	Inadequate Verification and Validation of Data	Not Accurately and Clearly Presented	Does Not Measure MITS ¹ Services Performance
User Support					
Percent Tickets Resolved on Time	X		X		
Ticket Activity	X		X		
Mean Queue Time			X		
Percent Resolution at 1 st Contact	X		X		
Data Access and Communications					
Percent Systems Availability	X		X	X	
Number of Hours Availability	X		X	X	
Percent Subsecond Response Time		X	X		
Applications Support					
Number of RISs ² Received					X
System Delivery Commitments Met					

¹ MITS – Modernization, Information Technology and Security. ² RIS – Request for Information Services.

Appendix V

Management's Response to the Draft Report



DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
WASHINGTON, D.C. 20224

RECEIVED FEB 25 2003

FEB 1 9 2003

MEMORANDUM FOR ACTING TREASURY INSPECTOR GENERAL FOR TAX ADMINISTRATION

FROM:

William E. Porter

Director, Resources Allocation and Measurement

SUBJECT:

Management Response to Draft Audit Report

Improvements in the Measures Program for Information Technology Services Would Further Increase Its Value to

Stakeholders (Audit No. 200220035)

The Modernization, Information Technology, and Security (MITS) Services organization is committed to continuously improving our measures program. As we strive to achieve an optimal program, we also recognize our resource limitations will affect data collection and measures. We will continue to balance the need for developing meaningful measures that are fiscally prudent to collect.

Your report recognizes that we have significantly improved our business results measures. We will continue to report our progress to the Commissioner through the quarterly Business Performance Review. Your report also recognizes the historic Master Service Level Agreement (MSLA), which MITS Services and the IRS business customers signed at the end of FY 2002, as a groundbreaking achievement. The MSLA includes the services and service levels that we have agreed to provide to our business customers. We will use the business results measures to report how well we are achieving the MSLA standards.

Although we have significantly improved our measures program, we also know we need to do more if we are to provide the best value to our business customers. I have directed the MITS Services organization to do everything in its power to implement all the recommendations you cited in your report. I have attached our response to your recommendations.

If you have any questions, please call me at (202) 283-6654, or Kurt Jensen, Director, Portfolio Management Division at (202) 283-6022.

Attachment

Attachment

Management Response to Draft Audit Report Improvements in the Measure Program for Information Technology Services Would Further Increase Its Value to Stakeholders (Audit No. 200220035)

IDENTITY OF RECOMMENDATION #1

The Deputy Commissioner for Modernization & Chief Information Officer should direct the End User Equipment and Services organization to conduct live monitoring of the helpdesk assistors and perform monthly reviews of helpdesk tickets until the inaccuracies related to the recording of service tickets are resolved. These reviews should be conducted on a sample of tickets recorded by each helpdesk. Formal written reports should be prepared to document the results of the reviews. Additional formal training should be conducted in those locations where problems persist.

ASSESSMENT OF CAUSE

TIGTA found that the helpdesk tickets we used to calculate five balanced measures were often misclassified, and many tickets remained open after the computer problems were resolved. In addition, we closed many tickets with the ITAMS system default date rather than with the actual ticket closure date. As a result, the calculations of the five business results measures are incorrect.

CORRECTIVE ACTION #1

The End User Equipment and Services organization, with support of the Performance Assessment Office (PAO), will implement verification and validation processes.

IMPLEMENTATION DATE		
Completed:	Proposed:	10/01/2004

RESPONSIBLE OFFICIAL

Deputy Commissioner Modernization & Chief Information Officer M Chief, Information Technology Services M:I Director, End User Equipment and Services M:I:EU

CORRECTIVE ACTION MONITORING PLAN #1

Management will review progress during quarterly staff meetings to ensure that processes are being implemented and that the calculated data being reported in the Business Performance Review (BPR) is accurate and complete.

Attachment

Management Response to Draft Audit Report Improvements in the Measure Program for Information Technology Services Would Further Increase Its Value to Stakeholders (Audit No. 200220035)

IDENTITY OF RECOMMENDATION #2

The Deputy Commissioner for Modernization & Chief Information Officer should direct the PAO to prepare a formal sampling plan for the "Percent Subsecond System Response Time" measure that focuses on the computer terminals used to calculate the measure. The sampling plan should identify the population size, confidence level, precision, sample size, and other sampling criteria. The computer terminals on which Attachmate is installed should be randomly selected. In addition, the population of terminals, on which Attachmate cannot be installed, should be identified and, if significant, disclosed when this measure is reported in the BPR and in the IRS' GPRA submissions.

ASSESSMENT OF CAUSE

We did not use a statistically valid sample of workstations to calculate the "Percent Subsecond System Response Time" measure.

CORRECTIVE ACTION #2

Performance Assessment Office (PAO), working with the End User Equipment and Services and Enterprise Operations organizations, will implement a formal documented sampling plan for the "Percent Subsecond System Response Time" measure.

IMPLEMENTATION DATE Completed:	Proposed: <u>10/01/2004</u>		
RESPONSIBLE OFFICIAL			
Deputy Commissioner Modernization & Chief Information Officer M			
Director, Resources Allocation and Measur			

CORRECTIVE ACTION MONITORING PLAN #2

Management will review progress during quarterly staff meetings to ensure that a sampling plan is being implemented and that it is yielding accurate and complete measures information for inclusion in the Business Performance Review (BPR).

Attachment

Management Response to Draft Audit Report Improvements in the Measure Program for Information Technology Services Would Further Increase Its Value to Stakeholders (Audit No. 200220035)

IDENTITY OF RECOMMENDATION #3

The Deputy Commissioner for Modernization & Chief Information Officer should direct the PAO to disclose all limitations of and potential inaccuracies in measures that are included in reports, such as the BPR and budget submissions, until those limitations and inaccuracies are addressed.

ASSESSMENT OF CAUSE

The BPR, and other measures reports, do not disclose data limitations and potential measures inaccuracies.

CORRECTIVE ACTION #3

Performance Assessment Office (PAO) will disclose data limitations and potential measures inaccuracies in its reports, such as the BPR and budget submissions, until we resolve the limitations.

IMPLEMENTATION DATE Completed: 01/31/2003	Proposed:
RESPONSIBLE OFFICIAL Deputy Commissioner Modernization & Ch	int Information Officer NA

CORRECTIVE ACTION MONITORING PLAN #3

Director, Resources Allocation and Measurement M:R

Management will review progress during weekly staff meetings to ensure that all limitations and inaccuracies are disclosed in Business Performance Review (BPR) and budget submissions.

Attachment

Management Response to Draft Audit Report Improvements in the Measure Program for Information Technology Services Would Further Increase Its Value to Stakeholders (Audit No. 200220035)

IDENTITY OF RECOMMENDATION #4

The Deputy Commissioner Modernization and Chief Information Officer should direct the PAO to count the unscheduled downtime recorded on all helpdesk tickets and factor this total into the calculations of the "Number of Hours of Availability" and "Percent Systems Availability" measures. The PAO should continue this practice until the misclassification and inaccurate recording of the helpdesk tickets is resolved.

ASSESSMENT OF CAUSE

We improperly calculated the "Number of Hours of Availability" and "Percent Systems Availability" measures because the PAO decided not to count the unscheduled system downtime recorded on the Priority 2 and 3 helpdesk tickets. A significant number of helpdesk tickets recorded in the ITAMS were improperly categorized or inaccurate. Some helpdesk tickets that are coded as Priority 3 tickets should have been coded as a higher priority, such as a Priority 1 or 2.

CORRECTIVE ACTION #4

Performance Assessment Office (PAO), working with the End User Equipment and Services and Enterprise Operations organizations, will count the unscheduled downtime until we resolve the misclassification and inaccurate recording of the helpdesk tickets.

IMPLEMENTATION DATE Completed:	Proposed:10/01/2004
RESPONSIBLE OFFICIAL	
Deputy Commissioner Modernization &	Chief Information Officer M
Director, Resources Allocation and Med	

CORRECTIVE ACTION MONITORING PLAN #4

Management will review progress during quarterly staff meetings to ensure that unscheduled downtime is being counted and reported in the Business Performance Review (BPR).

Attachment

Management Response to Draft Audit Report Improvements in the Measure Program for Information Technology Services Would Further Increase Its Value to Stakeholders (Audit No. 200220035)

IDENTITY OF RECOMMENDATION #5

The Deputy Commissioner Modernization and Chief Information Officer should direct the PAO to calculate the "Number of Hours of Availability" and "Percent Systems Availability" measures based on the performance of the computer systems during the core or specific hours requested by the users.

ASSESSMENT OF CAUSE

In calculating of the "Number of Hours of Availability" and the "Percent Systems Availability" measures, the Performance Assessment Office (PAO) did not count only the specific hours the users requested. Instead, the PAO counted all 24 hours. This practice distorted the intent of the measure, which was to report whether MITS Services provided the level of service it agreed to with its customers.

CORRECTIVE ACTION #5

Performance Assessment Office (PAO), working with the End User Equipment and Services and Enterprise Operations organizations, will calculate the scheduled hours of availability measures based on the Master Service Level Agreement.

IMPLEMENTATION DATE Completed:	Proposed: _	10/01/2004
RESPONSIBLE OFFICIAL Deputy Commissioner Modernization &	Chief Information	Officer M

CORRECTIVE ACTION MONITORING PLAN #5

Director, Resources Allocation and Measurement M:R

Management will review progress during quarterly staff meetings to ensure that computer performance based on the MSLA is being calculated accurately and reported in the Business Performance Review (BPR).

Attachment

Management Response to Draft Audit Report Improvements in the Measure Program for Information Technology Services Would Further Increase Its Value to Stakeholders (Audit No. 200220035)

IDENTITY OF RECOMMENDATION #6

The Deputy Commissioner Modernization and Chief Information Officer should direct the PAO to perform ongoing verification and validation activities for all of the business results measures and supporting data reported in the MITS Services BPRs.

ASSESSMENT OF CAUSE

There is no substantial ongoing verification and validation for seven of the nine business results measures.

CORRECTIVE ACTION #6

Performance Assessment Office (PAO), in cooperation with MITS service providers, will implement verification and validation processes.

IMPLEMENTATION DATE Completed:	Proposed:10/01/2003
RESPONSIBLE OFFICIAL	

Deputy Commissioner Modernization & Chief Information Officer M Director, Resources Allocation and Measurement M:R

CORRECTIVE ACTION MONITORING PLAN #6

Management will review progress during monthly staff meetings to ensure that verification and validation activities are being implemented and that accurate measures data is reported in the Business Performance Review (BPR).

Attachment

Management Response to Draft Audit Report Improvements in the Measure Program for Information Technology Services Would Further Increase Its Value to Stakeholders (Audit No. 200220035)

IDENTITY OF RECOMMENDATION #7

The Deputy Commissioner Modernization and Chief Information Officer should direct the PAO to move the "Number of RISs Received for Filing Season" from the nine business results measures and report it solely as a diagnostic indicator. This diagnostic indicator should be used to help management better understand the other business results measures.

ASSESSMENT OF CAUSE

The "Number of RISs Received for Filing Season" is an inappropriate measure because it does not describe the performance of the MITS Services organization. Because many factors outside the control of the MITS Services organization directly influence the number of RISs received during the IRS' annual filing season, MITS Services should not set a performance goal for this measure.

CORRECTIVE ACTION #7

Performance Assessment Office (PAO), with concurrence of the Director, Business Systems Development, will report the "Number of RISs Received for Filing Season" solely as a diagnostic indicator.

IMPLEMENTATION DATE Completed:	Proposed: _	10/01/2003
TOTAL STATE OF THE		

RESPONSIBLE OFFICIAL

Deputy Commissioner Modernization & Chief Information Officer M Director, Resources Allocation and Measurement M:R

CORRECTIVE ACTION MONITORING PLAN #7

Management will review progress during monthly staff meetings to ensure that we are following CFO procedures for changing our set of measures and reporting on them in the Business Performance Review (BPR) and the Strategy and Program Plan.

Attachment

Management Response to Draft Audit Report Improvements in the Measure Program for Information Technology Services Would Further Increase Its Value to Stakeholders (Audit No. 200220035)

IDENTITY OF RECOMMENDATION #8

The Deputy Commissioner Modernization and Chief Information Officer should direct the PAO to develop a business results measure and identify data sources to address the management challenge of creating and maintaining an accurate automated data processing inventory system.

ASSESSMENT OF CAUSE

Maintaining an accurate inventory of automated data processing equipment has challenged MITS Services for many years. The problem results in inadequate financial accountability and the inability to identify, safeguard, and manage IRS assets. This is not one of the current management challenges as reported to the Congress. However, it is consistently an area of interest for oversight bodies, including the Congress, and a key goal for which we should developed measures. TIGTA did not identify any measures under development or in testing that would address this issue.

CORRECTIVE ACTION #8

Performance Assessment Office (PAO), working with the End User Equipment and Services organization, will develop a business results inventory measure and identify data sources.

IMPLEMENTATION DATE Completed:	Proposed: _	10/01/2004	
RESPONSIBLE OFFICIAL			
Deputy Commissioner Modernization & Chief Information Officer M			
Director, Resources Allocation and Measure	ement M:R		

CORRECTIVE ACTION MONITORING PLAN #8

Management will review progress during quarterly staff meetings to ensure that a business results inventory measure is developed, that we are following CFO procedures for changing our set of measures, and that this new measure is being reported in the Business Performance Review (BPR).